c)   sequentially comparing the search pattern to the mask layout as the mask layout is scanned using an algorithm based on polygons in the mask layout, the polygons in the mask layout being partitioned into triangles and the triangles in the mask layout being compared to the description of the search pattern, and wherein each pixel in a triangle has a cumulative weight based on the pattern pixel weight in the triangular region above and to one side of the weighted pixel, and

d)   identifying any area in the mask layout tending to match the search pattern.

39.   (New) The method as defined by claim 15 wherein the search pattern is a layout clip.

40.   (New) In a process for comparing geometric shapes in a mask layout to a description of a search pattern, a method for defining the geometric shapes comprising the steps of:

a) cumulatively weighting pixels in each geometric shape wherein a pixel value for a triangle has a cumulative weight based on the pixel weight in the triangular region above and to one side of the weighted pixel, and

b) storing only the cumulative weights for selected pixels .

41.   (New) The method of claim 36 wherein the image is a Scanning Electron Micrograph (SEM) image of a layout.

Claims 7-11, 15-24, 26-27, 31 and 34-35 remain in the application in amended form, and new claims 36-41 are added.

The Examiner has noted that claims 7-10, 15-22, 31, and 35 would be allowable if rewritten in independent form including all limitations of the base claim and any intervening claims. By the present amendment, claims 7, 31, and 35 are rewritten in independent form including limitations of the base claim and intervening claims, with minor changes, and newly added claims 36-41 are patterned after allowed claims. Accordingly, it is believed that claims 7-11, 15-24, 26-27, 31, 34-41 are patentable and in condition for allowance.

Claim 7 as rewritten in independent form includes all limitations of the parent and intervening claims, claim 15 as rewritten in independent form includes all limitations of the parent claim and intervening claims, but "search pattern" is substituted for "aberration function", claim 31 is rewritten in independent form with all limitations of the base claim, claim 35 is rewritten with all limitations of base claim, and new claim 38 is patterned after claim 15 except mask layout is partitioned into triangles rather than rectangles. This is noted in paragraph 9 of the Brief Summary of the Invention that the invention can be extrapolated to triangle primitives for polygons with diagonal lines. See also Figs. 11, 16, and 20 regarding the use of the triangle algorithm or a rectangle/triangle algorithm. New claim 40 is patterned after claim 35 except mask layout is partitioned into triangles rather than rectangles for the same reasons.

The art cited by the Examiner in rejecting claims in the first Office Action, Pierrat 7,003,757 and Lepselter 5,455,427 are not believed relevant to the remaining claims as amended, as noted by the Examiner in the first Office Action.

Pierrat et al. is concerned with "proximity effects" within a mask layout and Lepselter is concerned with exposing a radiation sensitive workpiece to radiation from an electron gun with the radiation passing through apertures in irradiating the sensitive workpiece. Lepselter indicates that the apertures through which the radiation passes can be in the form of squares, rectangles, and triangles; however, the claimed invention is not concerned with irradiating a surface, but rather with locating areas in a mask layout using a search pattern such as an aberration function and in which the mask layout is scanned using an algorithm based on polygons in the mask layout, the mask layout being partitioned into rectangles and the rectangles in the mask layout being compared to the description of the search pattern for aberration function. Further, each pixel in a rectangle has a cumulative weight based on the pattern pixel weight of the rectangular region above and to the side of the weighted pixel.

Thus, the invention as defined by the claims remaining in the application are not concerned with irradiating a workpiece through a mask pattern as in Lepselter, nor is the claimed invention directed to correcting proximity effects in a fabrication layout as is Pierrat. Moreover, neither Pierrat nor Lepselter teach the weighting or each pixel in a rectangle based on the pattern pixel weight in a rectangle above and to one side of the weighted pixel as defined in claim 15, or where the description of the aberration function is modeled as producing spillover as defined in claim 7. Further, neither reference is concerned with comparing one handwriting image to another handwriting image as in claim 31.

Since the Examiner has indicated that claims 7-10, 15-22, 31 and 35 would be allowable if rewritten in independent form, since claims 7, 15, 31, and 35 are so rewritten in independent form with all other claims depending therefrom, and since claim 38 is patterned after claim 15 except for substituting "triangles" for "rectangles" and claim 40 is patterned after claim 35 except for substituting "triangles" for "rectangles", all as above set forth, it is requested that claims 7-11, 15-24, 26-27, 31, 34-41 be allowed and the case advanced to issue.

Should the Examiner have any question or comment concerning the present amendment and response, a telephone call to the undersigned attorney is requested.

Respectfully submitted,
BEYER WEAVER & THOMAS, LLP

/Henry K. Woodward/
Henry K. Woodward
Reg. No. 22,672

P.O. Box 778
Berkeley, CA 94704-0778
(650) 961-8300